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PATENT & TRADEMARK OFFICE

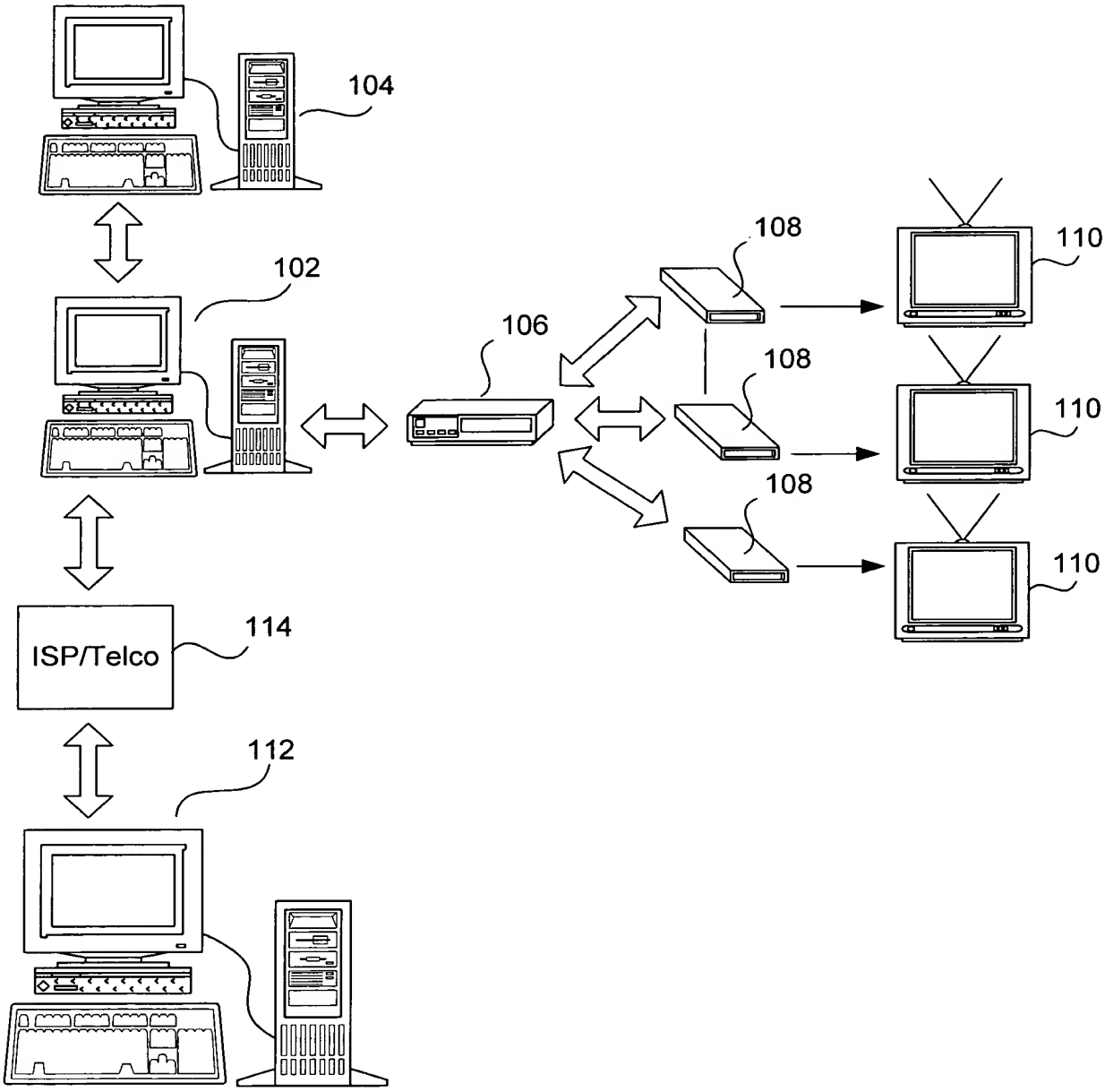

FIG. 1

NEVCO VOD/KTV Set-top Box Board Layout

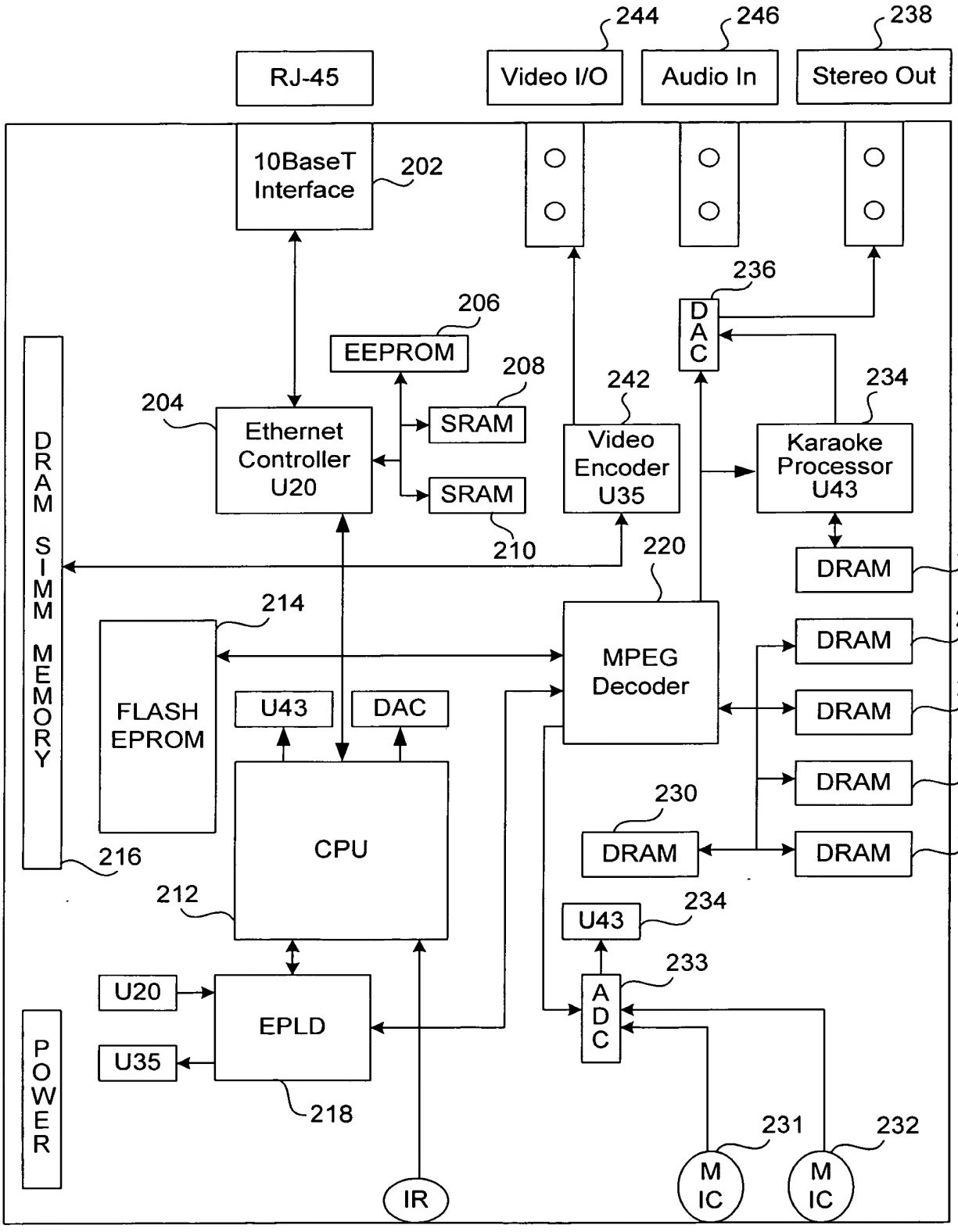

FIG. 2

Examples of entering video titles:

Start-up TV screen

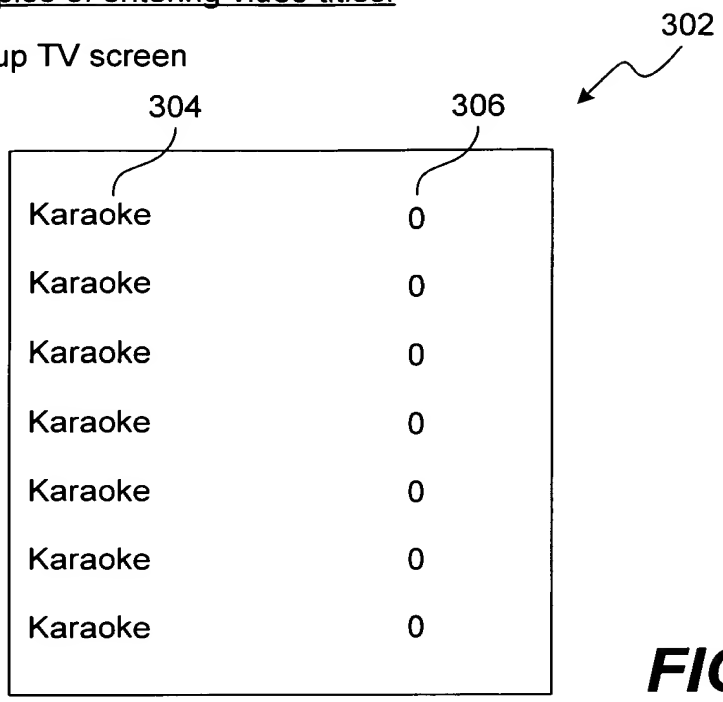

FIG. 3A

TV screen after all titles are entered.

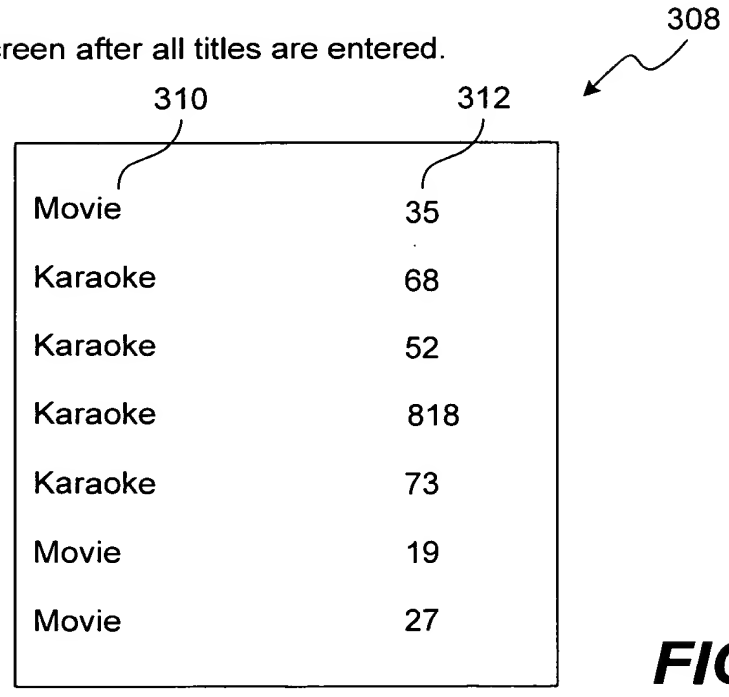

FIG. 3B

IR REMOTE CONTROL INSTRUCTIONS

The following diagram is the IR remote control key positions

TV/VIDEO 402	NEXT 404		ENTER 406
1 414	2 416	3 418	VOL + 456
4 420	5 422	6 424	VOL - 458
7 426	8 428	9 430	ECHO + 460
NTSC/PAL 408	0 413	RESET 410	ECHO - 462
	↑ 432		FADER 464
← 436	View/Menu 412	→ 438	PITCH 466
	↓ 434	SEEK 448	HARMONY 468
KEY - 450	KEY N 454	KEY + 452	MUTE 470
SLOW 442	STEP 446	PAUSE 444	PLAY 440

Main Control Keys:

NTSC/PAL - Switches between NTSC and PAL modes. Default is PAL mode after power-up.

Reset - Reboots the set-top box.

Next - Stops the current video and starts the next video selected.

Enter - Press *enter* to change from karaoke to movie and vice versa. Press *enter* to erase title 0.
Press *enter* after entering karaoke or movie title is completed.

View/Menu - After all karaoke or movie titles are entered, press this key to start playing video.
During video play, when this key is pressed, menu screen would come on and video titles can be added or edited. Press this key again to start playing the video.

Up/Down/Right/Left arrow keys - Moves the cursor (indicated by gold color) up or down, right or left.

0-9 number keys - Numbers are used to identify video titles.

FIG. 4

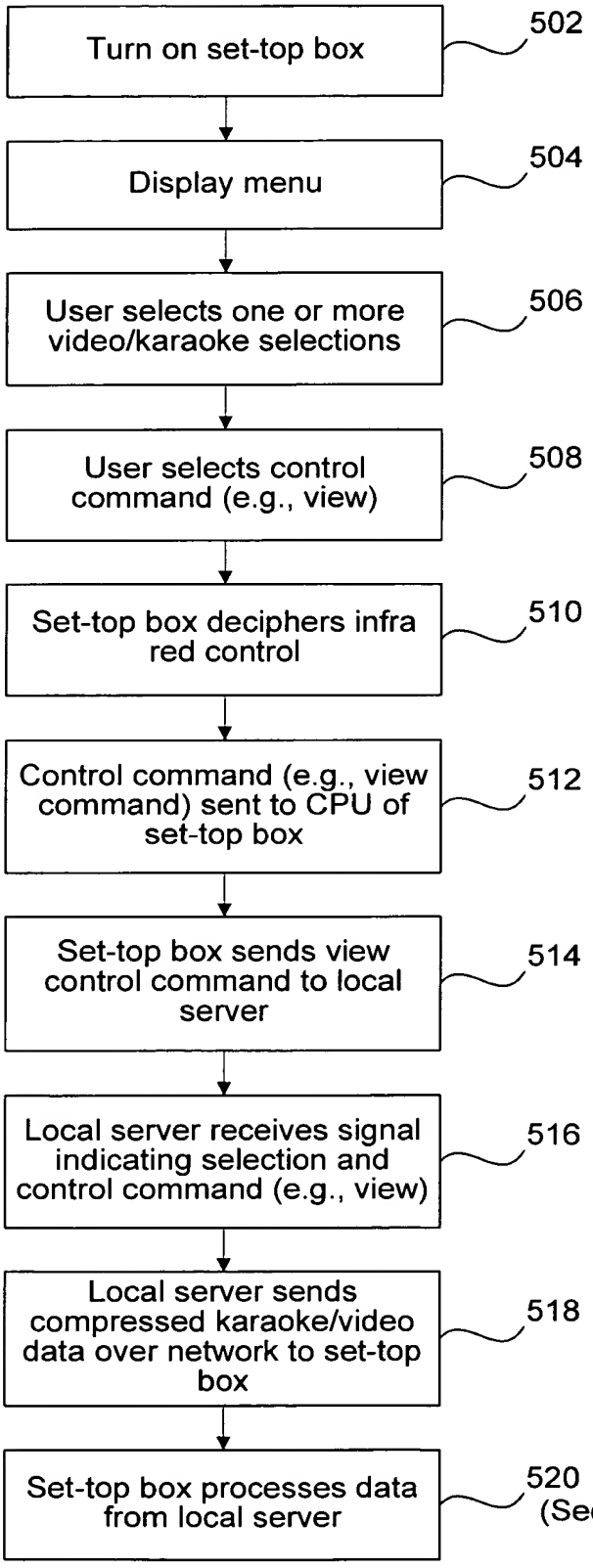
Turn on set-top box
502
Display menu
504
User selects one or more video/karaoke selections
506
User selects control command (e.g., view)
508
Set-top box deciphers infra red control
510
Control command (e.g., view command) sent to CPU of set-top box
512
Set-top box sends view control command to local server
514
Local server receives signal indicating selection and control command (e.g., view)
516
Local server sends compressed karaoke/video data over network to set-top box
518
Set-top box processes data from local server
520
(See Fig. 14)

FIG. 5

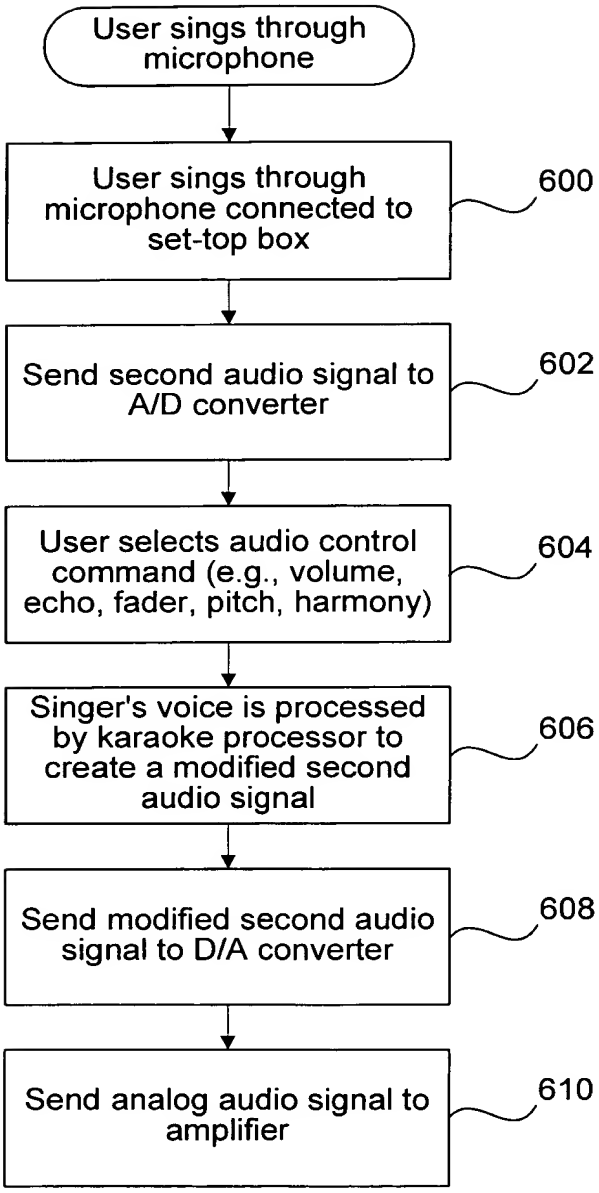
User sings through microphone
User sings through microphone connected to set-top box
600
Send second audio signal to A/D converter
602
User selects audio control command (e.g., volume, echo, fader, pitch, harmony)
604
Singer's voice is processed by karaoke processor to create a modified second audio signal
606
Send modified second audio signal to D/A converter
608
Send analog audio signal to amplifier
610

FIG. 6

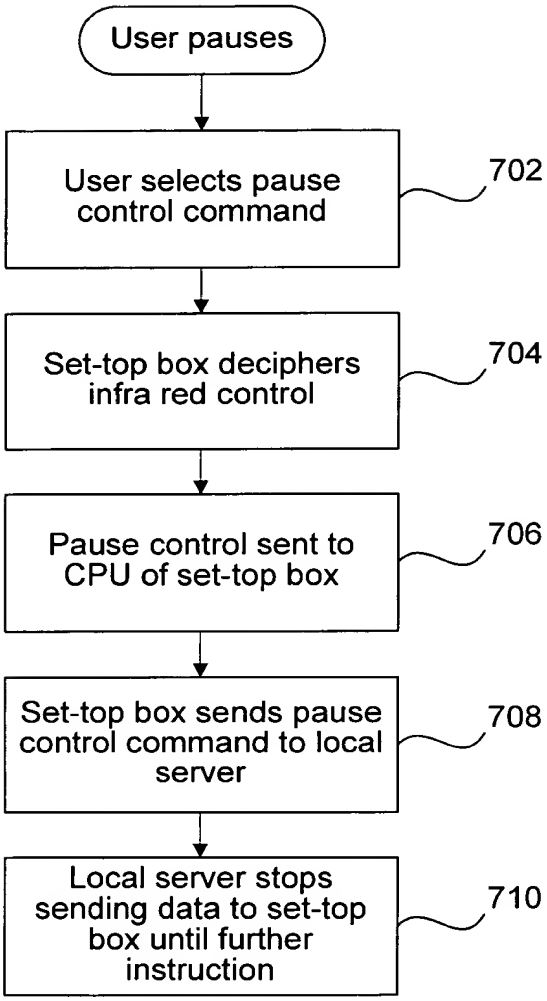
User pauses
User selects pause control command
702
Set-top box deciphers infra red control
704
Pause control sent to CPU of set-top box
706
Set-top box sends pause control command to local server
708
Local server stops sending data to set-top box until further instruction
710

FIG. 7

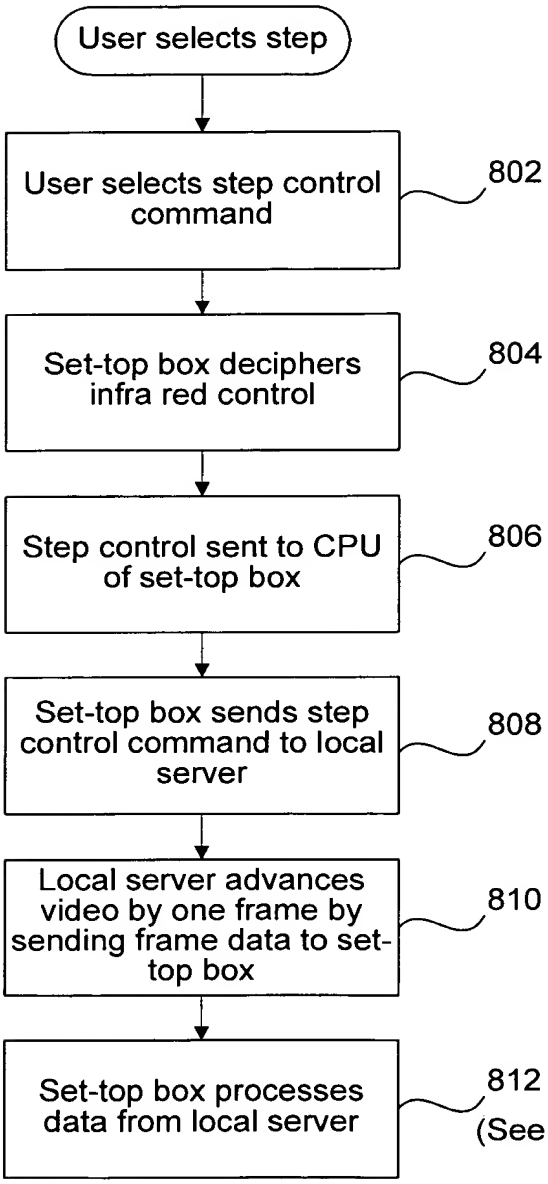
User selects step
User selects step control command
802
Set-top box deciphers infra red control
804
Step control sent to CPU of set-top box
806
Set-top box sends step control command to local server
808
Local server advances video by one frame by sending frame data to set-top box
810
Set-top box processes data from local server
812
(See Fig. 14)

FIG. 8

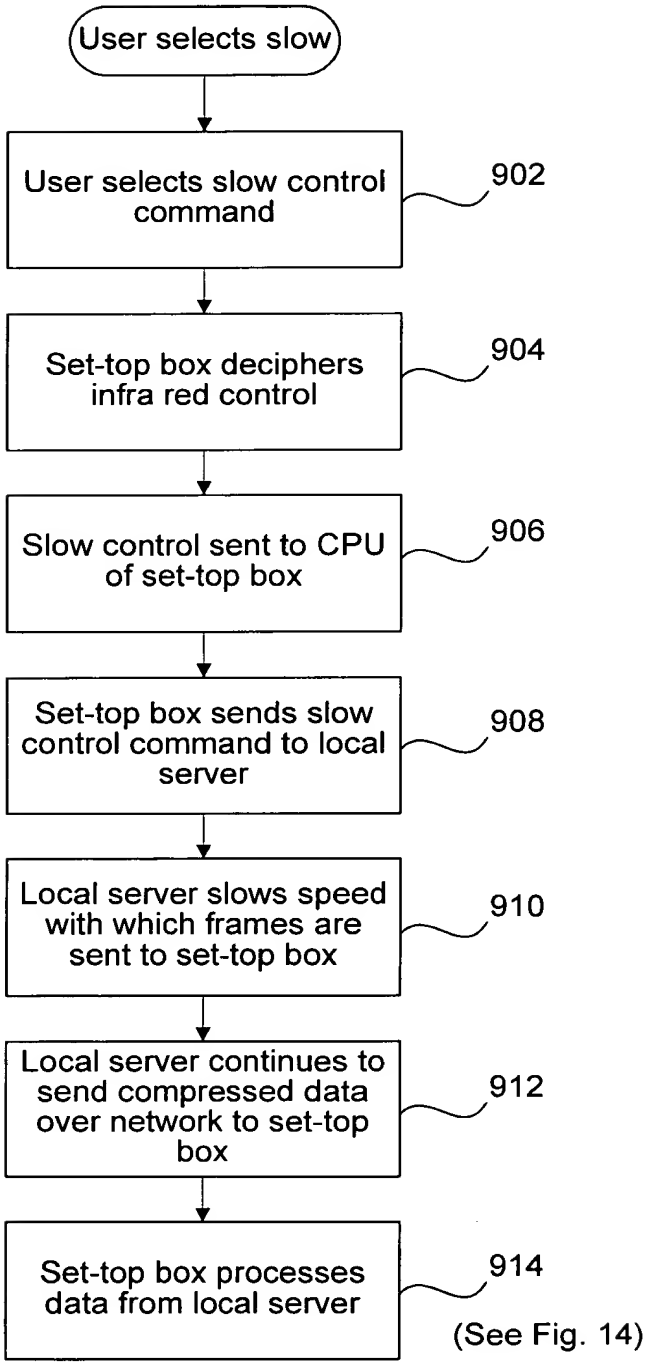
User selects slow
User selects slow control command
902
Set-top box deciphers infra red control
904
Slow control sent to CPU of set-top box
906
Set-top box sends slow control command to local server
908
Local server slows speed with which frames are sent to set-top box
910
Local server continues to send compressed data over network to set-top box
912
Set-top box processes data from local server
914
(See Fig. 14)

FIG. 9

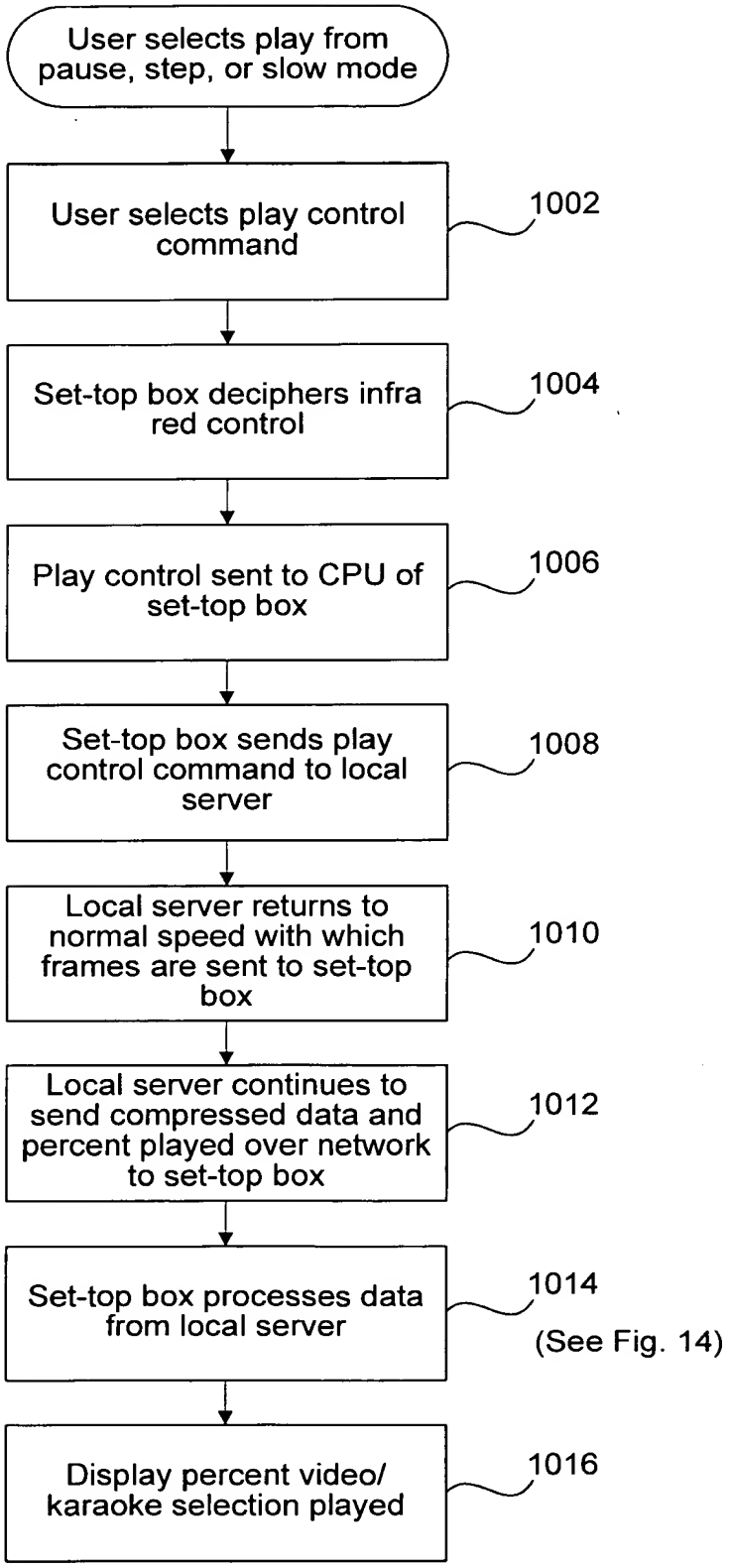
User selects play from pause, step, or slow mode
User selects play control command
1002
Set-top box deciphers infra red control
1004
Play control sent to CPU of set-top box
1006
Set-top box sends play control command to local server
1008
Local server returns to normal speed with which frames are sent to set-top box
1010
Local server continues to send compressed data and percent played over network to set-top box
1012
Set-top box processes data from local server
1014
(See Fig. 14)
Display percent video/ karaoke selection played
1016

FIG. 10

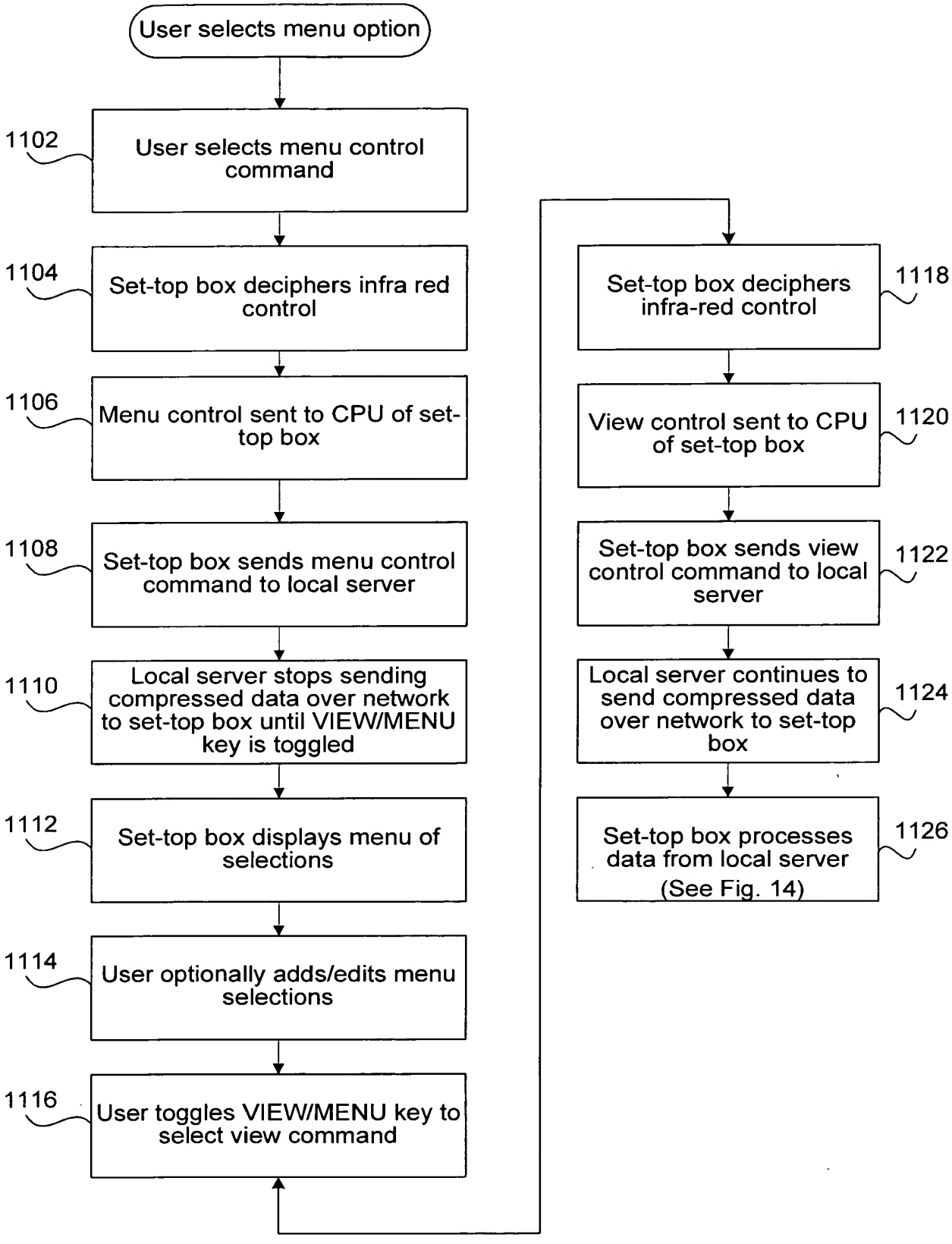
User selects menu option
1102
User selects menu control command
1104
Set-top box deciphers infra red control
1106
Menu control sent to CPU of set-top box
1108
Set-top box sends menu control command to local server
1110
Local server stops sending compressed data over network to set-top box until VIEW/MENU key is toggled
1112
Set-top box displays menu of selections
1114
User optionally adds/edits menu selections
1116
User toggles VIEW/MENU key to select view command
Set-top box deciphers infra-red control
1118
View control sent to CPU of set-top box
1120
Set-top box sends view control command to local server
1122
Local server continues to send compressed data over network to set-top box
1124
Set-top box processes data from local server
(See Fig. 14)
1126

FIG. 11

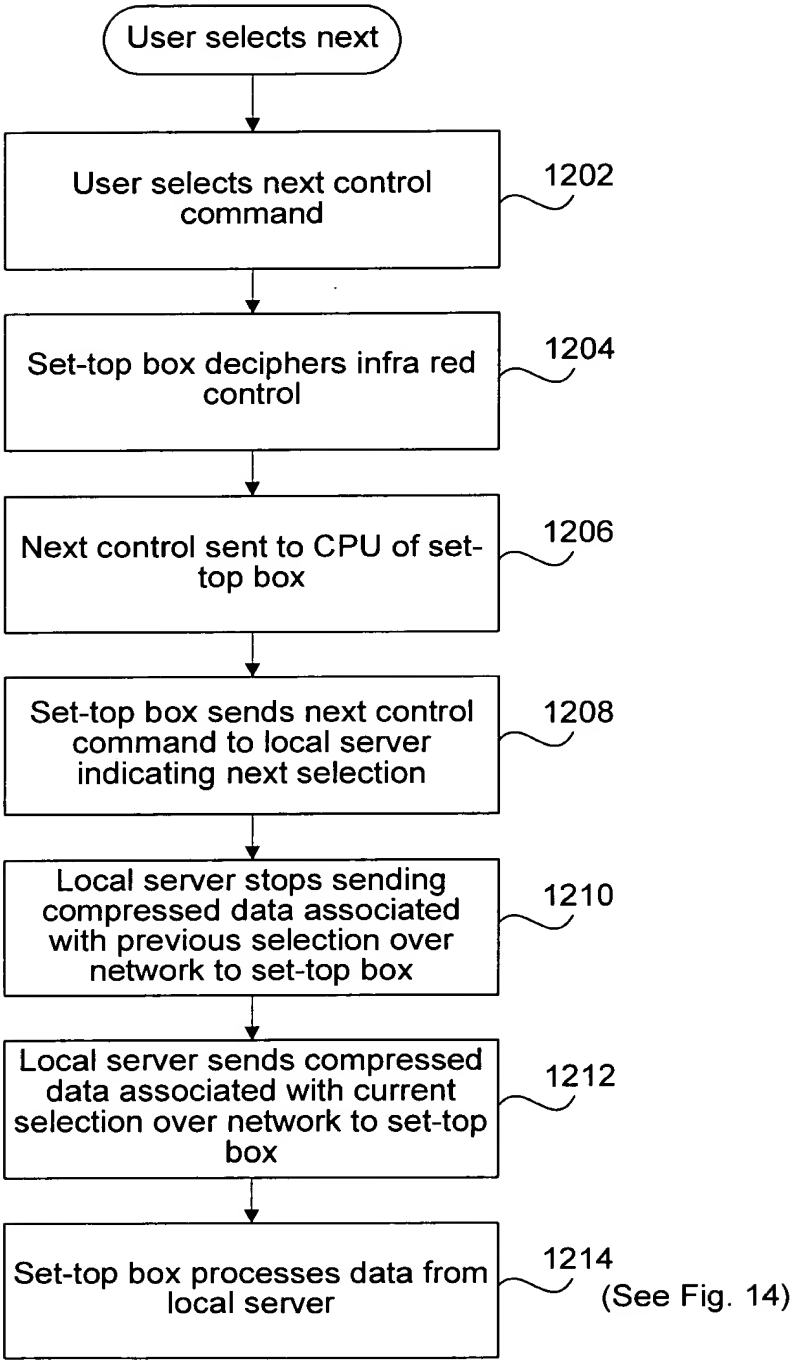
User selects next
User selects next control command
1202
Set-top box deciphers infra red control
1204
Next control sent to CPU of set-top box
1206
Set-top box sends next control command to local server indicating next selection
1208
Local server stops sending compressed data associated with previous selection over network to set-top box
1210
Local server sends compressed data associated with current selection over network to set-top box
1212
Set-top box processes data from local server
1214
(See Fig. 14)

FIG. 12

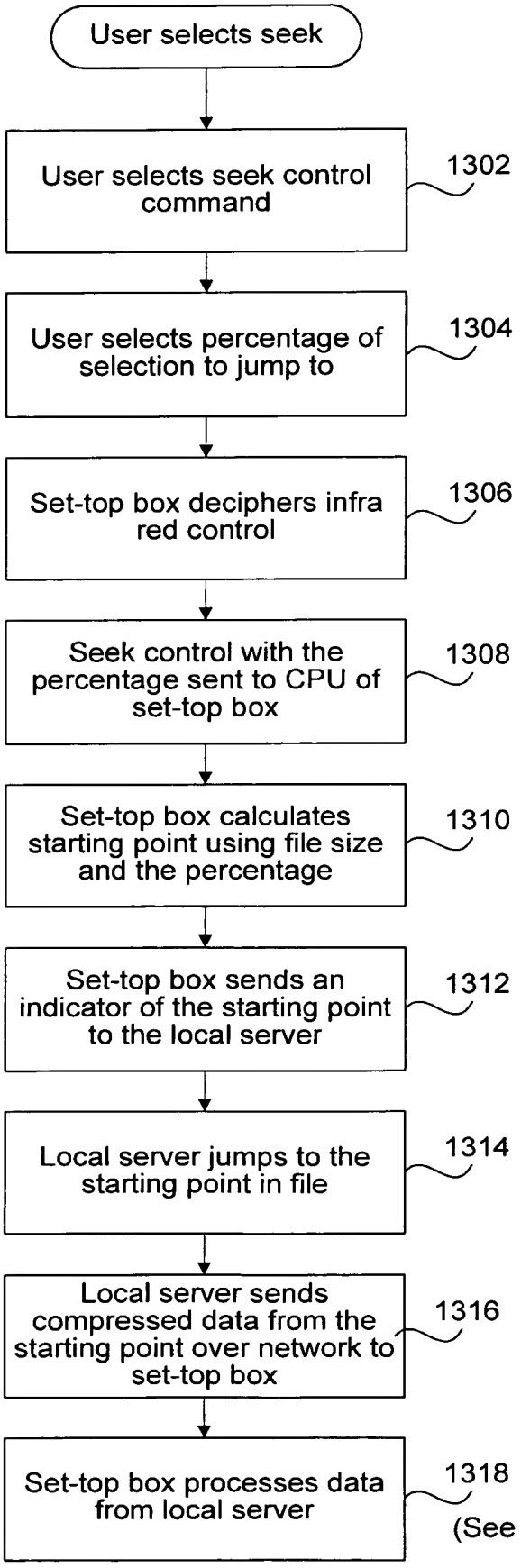
User selects seek
User selects seek control command
1302
User selects percentage of selection to jump to
1304
Set-top box deciphers infra red control
1306
Seek control with the percentage sent to CPU of set-top box
1308
Set-top box calculates starting point using file size and the percentage
1310
Set-top box sends an indicator of the starting point to the local server
1312
Local server jumps to the starting point in file
1314
Local server sends compressed data from the starting point over network to set-top box
1316
Set-top box processes data from local server
1318
(See Fig. 14)

FIG. 13

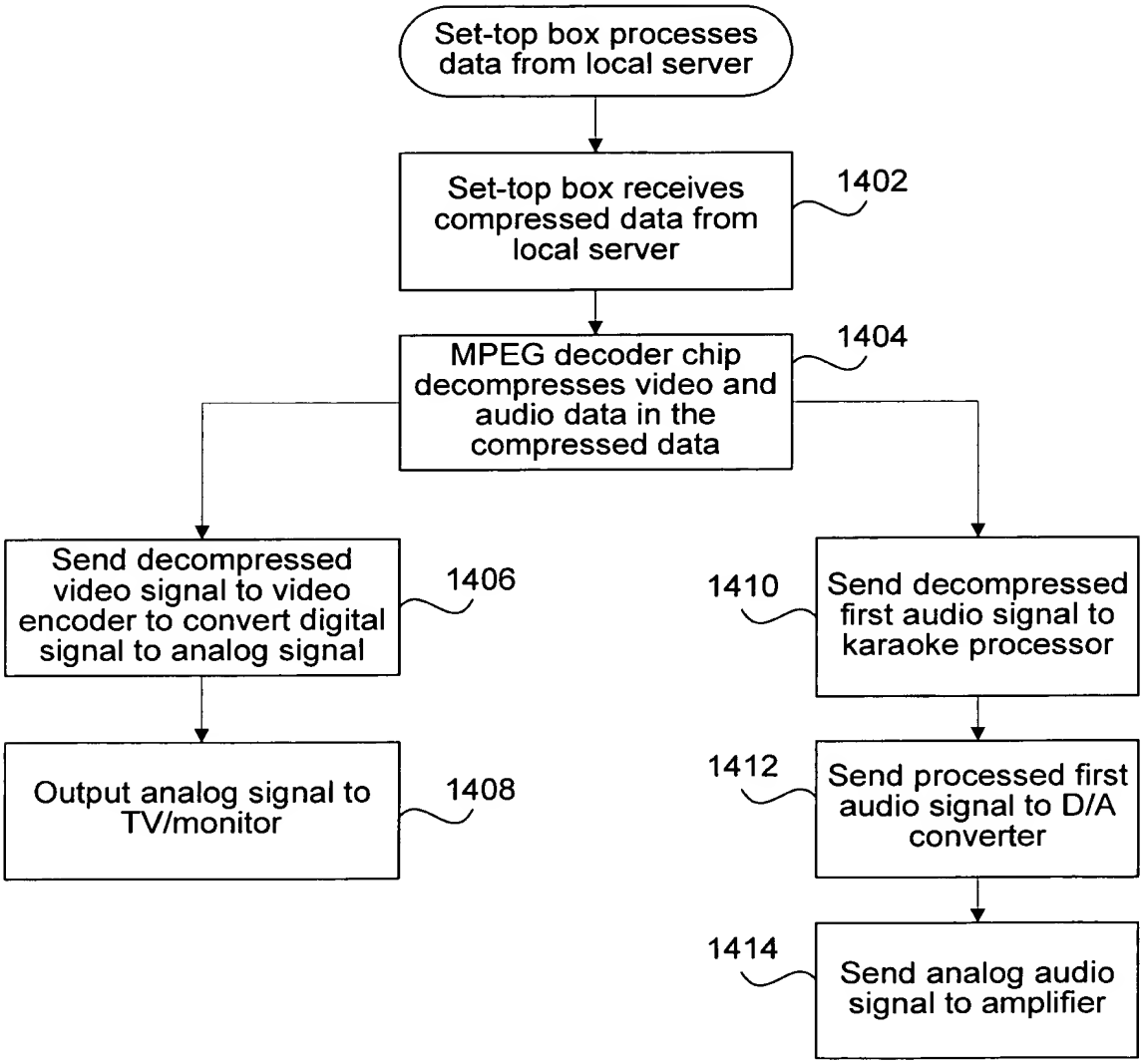
Set-top box processes data from local server
Set-top box receives compressed data from local server
1402
MPEG decoder chip decompresses video and audio data in the compressed data
1404
Send decompressed video signal to video encoder to convert digital signal to analog signal
1406
Output analog signal to TV/monitor
1408
1410
Send decompressed first audio signal to karaoke processor
1412
Send processed first audio signal to D/A converter
1414
Send analog audio signal to amplifier

FIG. 14